

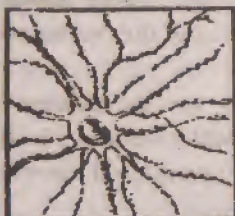
Types of Neuroglia : They are mainly of 3 types :

(1) Astrocytes, (2) Oligodendroglia and (3) Microglia.

Astrocytes and Oligodendroglia are *ectodermal* in origin while Microglia are *mesodermal* in origin.

1. **ASTROCYTES (Astroglia) :** These are stellate cells with round or oval nuclei and numerous processes.

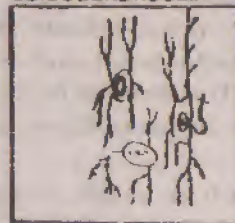
FIBROUS ASTROCYTE



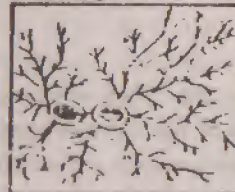
PROTOPLASMIC ASTROCYTE



OLIGODENDROGLIA



MICROGLIA



(i) *Protoplasmic astrocytes*—Possess thick branching processes, and are found mainly in the grey matter.

(ii) *Fibrous astrocytes*—possess radiating processes which are much longer, straighter and thinner. They are found mainly in the white matter.

Astrocytes are considered to be involved in nutrition of the nervous tissue.

2. **OLIGODENDROCYTES (Oligodendroglia) :**—These resemble astrocytes except that they are smaller with less branched processes. They are present in both grey and white matter of CNS.

3. **MICROGLIAL CELLS (Microglia) :** They are small, amoeboid cells with little cytoplasm. They possess few processes which bear small pointed spines or twigs. They are present in large number in the grey matter. They are phagocytic cells and play a role in the defence mechanism.

Fig. 2 : Types of Neuroglia

CHAPTER 2

Spinal Cord

Spinal cord is a long cylindrical structure, slightly flattened dorsoventrally, occupying the upper two-thirds of the vertebral canal. It forms the caudal part of central nervous system (CNS).

Measurements : in adult—

- (i) Length : 45 cm (18 inches).
- (ii) Breadth : 1.25 cm ($\frac{1}{2}$ inch).
- (iii) Weight : 30 gm.

Extent : It extends from the level of the upper border of atlas (1st cervical vertebra) to the level of the lower border of 1st lumbar vertebra or the upper border of 2nd lumbar vertebra (sometimes it ends at the level of the lower border of 12th thoracic vertebra or as low as the 3rd lumbar vertebra).

The position of its lower end varies with movements of the vertebral column; with flexion it is raised and with extension it is lowered slightly.

Spinal cord is continuous above with the medulla oblongata and below with the filum terminale.

Coverings : Spinal cord is protected by 3 membranous coverings. From outside to inside they are (i) *dura mater*, (ii) *arachnoid mater* and (iii) *pia mater*. They are separated from each other, by spaces containing fluid. The spaces are :

- (1) *Subdural* : between dura mater and arachnoid mater.
- (2) *Subarachnoid* : between arachnoid mater and pia mater.

External Features of Spinal Cord

Enlargements : Spinal cord is not of uniform breadth. It presents 2 enlargements : (a) cervical and (b) lumbar.